

Answers to questions in page 33

36. 10.6 g/cm^3

37. 151 g

38. $2.5 \times 10^2 \text{ mL}$

Critical Thinking

39. a. chemical; The physical appearance does not change, but the process of heating the material produces a gas and changes its reactivity.
- b. compound; The original material seems to break down to form a gas and a solid. A compound could be broken down by heating. An element cannot be broken down by heating.
40. a. This is a physical change because the dyes have only been separated, not changed in composition.
- b. The ink is a mixture because it was made up of different substances with different colors that were separated without changing their identities.
41. The conclusion is not valid as there was not enough information. Two different substances may have similar melting points. Volume is not a characteristic property as it changes with the amount of material. If mass is also measured, the density can be determined. Density is a characteristic property. The student should also compare the chemical properties of the sample to test his conclusion.

Concept Mapping

45. a. physical property
- b. matter
- c. density
- d. mass
- e. volume

Focus on Graphing

46. Mass increases as volume increases.
47. The slope of each line is the density of the metal.
48. Metal A: about 10.5 g/cm^3 ; Metal B: about 7.9 g/cm^3
49. Metal A: silver; Metal B: iron